Errata

Report:

Home and Non-Home Fires Involving Torches and Burners
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Fire Analysis and Research Division
National Fire Protection Association
May 2008

Errata No.: PKG27-May 2008-01

Reference:

A computer entry error resulted in over-estimation of home fires involving equipment for the year 2002. All types of equipment were affected except for heating equipment and air conditioning or fan equipment. Estimates for heating equipment and air conditioning or fan equipment were calculated in an earlier, separate exercise.

Most causal tables in the equipment report show estimated annual averages for 2002-2005 based on a four-year average from the trend table. The estimates in these tables are also artificially high.

In general, corrections result in a reduction of 14% in fires, 3% in civilian injuries and 0.3% in direct property damage. Estimates of civilian deaths are not affected. For equipment with fewer fires, the influence of 2002 fires on the total may be disproportionately large or small.

The attached table shows the corrected fire and loss estimates for each type of equipment involved. Please contact the Fire Analysis and Research Division if you need more specific information about causal factors associated with specific types of equipment.

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Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments

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National Fire Protection Association

October 2008

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Acknowledgements

The National Fire Protection Association thanks all the fire departments and state fire authorities who participate in the National Fire Incident Reporting System (NFIRS) and the annual NFPA fire experience survey. These firefighters are the original sources of the detailed data that make this analysis possible. Their contributions allow us to estimate the size of the fire problem.

We are also grateful to the U.S. Fire Administration for its work in developing, coordinating, and maintaining NFIRS.

For more information about the National Fire Protection Association, visit www.nfpa.org or call 617-770-3000. To learn more about the One-Stop Data Shop go to www.nfpa.org/osds or call 617-984-7443.

Copies of this analysis are available from:

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Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
631-647, 654	**COOKING EQUIPMENT**	**142,250**	**~~161,846~~**	**442**	**4,585**	**~~4,723~~**	**$761**	**~~$763~~**
	Non-confined	*36,910*	*~~42,730~~*	*442*	*3,163*	*~~3,257~~*	*$733*	*~~$735~~*
	Confined	*105,341*	*~~119,116~~*	*0*	*1,422*	*~~1,466~~*	*$28*	*~~$28~~*
646	Range	94,534	~~107,233~~	381	3,792	~~3,909~~	$529	~~$530~~
	Non-confined	*28,010*	*~~32,339~~*	*381*	*2,681*	*~~2,761~~*	*$509*	*~~$510~~*
	Confined	*66,524*	*~~74,894~~*	*0*	*1,111*	*~~1,149~~*	*$20*	*~~$20~~*
645	Oven	27,529	~~31,503~~	4	270	~~274~~	$32	~~$32~~
	Non-confined	*2,987*	*~~3,443~~*	*4*	*122*	*~~124~~*	*$26*	*~~$27~~*
	Confined	*24,541*	*~~28,060~~*	*0*	*148*	*~~149~~*	*$5*	*~~$5~~*
631-641	Portable cooking or warming device	7,943	~~9,047~~	38	219	~~226~~	$78	~~$78~~
	Non-confined	*2,439*	*~~2,893~~*	*38*	*156*	*~~162~~*	*$77*	*~~$77~~*
	Confined	*5,504*	*~~6,154~~*	*0*	*63*	*~~64~~*	*$1*	*~~$1~~*
637	Toaster or toaster oven	4,282	~~4,962~~	15	72	~~74~~	$34	~~$34~~
639	Wok, frying pan, or skillet	1,982	~~2,192~~	0	96	~~98~~	$10	~~$10~~
631	Coffee maker or teapot	600	~~672~~	4	16	~~18~~	$20	~~$20~~
632	Food warmer or hot plate	412	~~473~~	15	16	~~16~~	$7	~~$7~~
633	Kettle	297	~~331~~	4	5	~~5~~	$1	~~$1~~
636	Slow cooker	216	~~242~~	0	15	~~16~~	$5	~~$5~~
635	Pressure cooker or cancer	74	~~95~~	0	0	~~0~~	$0	~~$0~~
638	Waffle iron or griddle	34	~~34~~	0	0	~~0~~	$0	~~$0~~
641	Breadmaking machine	25	~~25~~	0	0	~~0~~	$0	~~$0~~
634	Popcorn popper	21	~~21~~	0	0	~~0~~	$0	~~$0~~
644	Microwave oven	7,123	~~8,085~~	0	108	~~111~~	$17	~~$17~~
	Non-confined	*1,180*	*~~1,331~~*	*0*	*62*	*~~64~~*	*$17*	*~~$17~~*
	Confined	*5,944*	*~~6,754~~*	*0*	*45*	*~~46~~*	*$1*	*~~$1~~*
643	Grill, hibachi, or barbecue	3,048	~~3,539~~	14	92	~~95~~	$83	~~$83~~
	Non-confined	*1,306*	*~~1,552~~*	*14*	*80*	*~~83~~*	*$83*	*~~$83~~*
	Confined	*1,742*	*~~1,987~~*	*0*	*12*	*~~12~~*	*$0*	*~~$0~~*

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	COOKING EQUIPMENT (Continued)							
642	Deep fryer	1,169	~~1,382~~	5	70	~~73~~	$17	~~$17~~
	Non-confined	*536*	*~~642~~*	*5*	*35*	*~~36~~*	*$17*	*~~$17~~*
	Confined	*633*	*~~740~~*	*0*	*35*	*~~37~~*	*$0*	*~~$0~~*
654	Grease hood or duct exhaust fan	868	~~1,009~~	0	34	~~35~~	$5	~~$5~~
	Non-confined	*447*	*~~524~~*	*0*	*26*	*~~27~~*	*$5*	*~~$5~~*
	Confined	*421*	*~~485~~*	*0*	*8*	*~~9~~*	*$0*	*~~$0~~*
647	Steam table or warming drawer	35	~~48~~	0	0	~~0~~	$0	~~$0~~
	Non-confined	*4*	*~~7~~*	*0*	*0*	*~~0~~*	*$0*	*~~$0~~*
	Confined	*31*	*~~42~~*	*0*	*0*	*~~0~~*	*$0*	*~~$0~~*
	Confined to cooking vessel but coded as equipment other than cooking equipment	*Not Checked*	*~~4,091~~*	*0*	*Not Checked*	*~~124~~*	*Not Checked*	*~~$2~~*
611-623, 651-653, 655-656	**KITCHEN EQUIPMENT OTHER THAN COOKING EQUIPMENT**	**2,852**	**~~3,340~~**	**15**	**102**	**~~105~~**	**$72**	**~~$72~~**
652, 655-656	Refrigerator, freezer, or ice maker	1,625	~~1,917~~	12	66	~~68~~	$48	~~$48~~
656	Refrigerator	1,347	~~1,580~~	12	47	~~48~~	$36	~~$37~~
652	Separate freezer	276	~~335~~	0	19	~~19~~	$12	~~$12~~
655	Separate ice maker	3	~~3~~	0	0	~~0~~	$0	~~$0~~
651	Dishwasher	1,133	~~1,309~~	4	30	~~31~~	$22	~~$22~~
653	Garbage disposer	38	~~43~~	0	3	~~4~~	$0	~~$0~~
611	Blender, juicer, or food processor	30	~~37~~	0	0	~~0~~	$0	~~$0~~
621	Can opener	16	~~21~~	0	2	~~2~~	$0	~~$0~~
612	Coffee grinder	7	~~9~~	0	0	~~0~~	$1	~~$1~~
623	Knife sharpener	3	~~3~~	0	0	~~0~~	$0	~~$0~~
622	Knife	0	~~0~~	0	0	~~0~~	$0	~~$0~~

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
NO CORRECTIONS WERE NEEDED FOR HEATING EQUIPMENT					
121-152	**HEATING EQUIPMENT**	**66,642**	**637**	**1,554**	**$961**
	Non-confined	*27,576*	*637*	*1,453*	*$942*
	Confined	*39,066*	*0*	*101*	*$19*
125-127	Chimney or chimney connector	25,304	26	71	$98
	Non-confined	*2,004*	*26*	*45*	*$85*
	Confined	*23,300*	*0*	*26*	*$13*
	Unspecified chimney or flue	22,778	0	26	$13
127	Metal chimney	1,163	13	23	$47
126	Brick or stone chimney	975	13	16	$29
125	Chimney connector	388	0	6	$9
123-124, 131, 141-143	Space heater	19,557	521	1,005	$556
	Non-confined	*14,711*	*521*	*984*	*$554*
	Confined	*4,845*	*0*	*21*	*$2*
124	Heating stove	7,720	180	432	$174
131	Local heating furnace	4,575	42	102	$54
141	Heater excluding oil-filled or catalytic	4,166	189	317	$220
143	Oil-filled heater	1,587	80	76	$30
123	Fireplace with insert	1,175	26	38	$67
142	Catalytic heater	334	4	39	$11
132-133	Furnace	12,327	41	161	$105
	Non-confined	*2,941*	*41*	*116*	*$101*
	Confined	*9,386*	*0*	*45*	*$4*
132	Central furnace	9,171	41	145	$84
133	Boiler	3,156	0	16	$21
151	Water heater	7,101	46	275	$117
	Non-confined	*5,767*	*46*	*266*	*$117*
	Confined	*1,335*	*0*	*9*	*$0*

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
NO CORRECTIONS WERE NEEDED FOR HEATING EQUIPMENT					
121-122	Fireplace	1,469	3	17	$64
	Non-confined	*1,309*	*3*	*16*	*$63*
	Confined	*160*	*0*	*1*	*$0*
121	Masonry fireplace	924	0	11	$31
122	Factory-built fireplace	545	3	5	$33
145	Heat tape	451	0	9	$8
	Non-confined	*451*	*0*	*9*	*$8*
	Confined	*0*	*0*	*0*	*$0*
144	Heat lamp	383	0	15	$12
	Non-confined	*343*	*0*	*15*	*$12*
	Confined	*40*	*0*	*0*	*$0*
152	Steamline, heat pipe, or hot air duct	51	0	0	$1
	Non-confined	*51*	*0*	*0*	*$1*
	Confined	*0*	*0*	*0*	*$0*
	Confined to chimney or boiler but coded as equipment other than heating equipment	*7,086*	*0*	*18*	*$1*
111-117	**AIR CONDITIONING, FAN, OR RELATED EQUIPMENT**	**6,071**	**35**	**254**	**$139**
113	Fan	3,225	15	145	$73
111	Air conditioner	2,197	16	86	$55
112	Heat pump	321	0	10	$4
116	Dehumidifier	197	0	5	$5
114	Humidifier	67	0	2	$1
117	Evaporative cooler or cooling tower	39	0	4	$1
115	Ionizer	24	4	2	$1

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Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
210-263	**ELECTRICAL DISTRIBUTION AND LIGHTING EQUIPMENT**	**20,673**	**~~24,176~~**	**321**	**805**	**~~828~~**	**$696**	**~~$698~~**
231-244	Lamp, light bulb or light fixture	5,762	~~6,789~~	57	237	~~244~~	$166	~~$166~~
231	Table, floor, or desktop lamp	1,929	~~2,247~~	43	130	~~135~~	$62	~~$63~~
233	Incandescent light fixture	1,488	~~1,723~~	9	38	~~39~~	$38	~~$38~~
238	Light bulb	626	~~769~~	0	13	~~13~~	$11	~~$11~~
235	Halogen light fixture	631	~~739~~	0	26	~~27~~	$19	~~$19~~
234	Fluorescent light fixture	417	~~519~~	0	3	~~3~~	$10	~~$10~~
237	Work or trouble light	315	~~369~~	0	7	~~7~~	$14	~~$14~~
242	Decorative light on line voltage	193	~~239~~	4	13	~~14~~	$7	~~$7~~
241	Nightlight	61	~~74~~	0	3	~~3~~	$1	~~$1~~
243	Decorative or landscape lighting on low voltage	40	~~44~~	0	0	~~0~~	$1	~~$1~~
232	Lantern or flashlight	43	~~43~~	0	3	~~3~~	$3	~~$3~~
244	Sign	9	~~14~~	0	0	~~0~~	$0	~~$0~~
236	Sodium or mercury vapor light	9	~~9~~	0	0	~~0~~	$0	~~$0~~
211-212, 214, 216	Wiring	4,621	~~5,403~~	88	73	~~75~~	$161	~~$161~~
216	Branch circuit wiring	2,328	~~2,736~~	83	43	~~44~~	$100	~~$100~~
212	Service supply wiring from utility	969	~~1,131~~	6	16	~~16~~	$33	~~$33~~
214	Wiring from meter box to circuit breaker	748	~~881~~	0	14	~~14~~	$17	~~$17~~
211	Power (utility) line	576	~~655~~	0	0	~~0~~	$11	~~$11~~
217-218	Outlet, receptacle, or switch	3,598	~~4,208~~	23	150	~~155~~	$116	~~$116~~
217	Outlet or receptacle	3,238	~~3,791~~	23	140	~~145~~	$107	~~$107~~
218	Wall switch	361	~~417~~	0	10	~~10~~	$9	~~$9~~

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Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	ELECTRICAL DISTRIBUTION AND LIGHTING EQUIPMENT (Continued)							
215, 219, 227	Overcurrent protection equipment	2,606	~~3,052~~	15	71	~~73~~	$69	~~$70~~
215	Panelboard or switchboard	2,138	~~2,502~~	4	52	~~54~~	$54	~~$55~~
227	Surge protector	420	~~488~~	11	15	~~16~~	$14	~~$14~~
219	Ground fault circuit interceptor (GFCI)	48	~~62~~	0	3	~~3~~	$2	~~$2~~
261-263	Cord or plug	2,568	~~2,982~~	125	206	~~212~~	$116	~~$116~~
263	Extension cord	1,811	~~2,114~~	96	165	~~171~~	$91	~~$91~~
262	Permanent power cord or plug	440	~~510~~	25	20	~~20~~	$12	~~$12~~
261	Detachable power cord or plug	318	~~358~~	4	21	~~21~~	$13	~~$13~~
213	Meter or meter box	806	~~935~~	4	17	~~17~~	$32	~~$32~~
224-226, 228-229	Power source	411	~~450~~	0	36	~~37~~	$29	~~$29~~
224	Generator	209	~~229~~	0	29	~~30~~	$19	~~$19~~
228	Battery charger or rectifier	132	~~147~~	0	7	~~7~~	$7	~~$7~~
229	Battery	55	~~60~~	0	0	~~0~~	$2	~~$2~~
225	Inverter	9	~~9~~	0	0	~~0~~	$0	~~$0~~
226	Uninterrupted power supply	4	~~4~~	0	0	~~0~~	$0	~~$0~~
221-223	Transformer	286	~~341~~	8	13	~~13~~	$7	~~$7~~
223	Low voltage transformer	134	~~156~~	4	8	~~8~~	$3	~~$3~~
222	Overcurrent or disconnect equipment	93	~~110~~	4	5	~~5~~	$4	~~$4~~
221	Distribution type transformer	60	~~75~~	0	0	~~0~~	$0	~~$0~~
253	Lightning rod or arrester	10	~~10~~	0	0	~~0~~	$0	~~$0~~
251	Electric fence	4	~~4~~	0	2	~~2~~	$0	~~$0~~
252	Traffic control device	0	~~0~~	0	0	~~0~~	$0	~~$0~~

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Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
300-599, 700-999	**OTHER APPLIANCES AND EQUIPMENT**							
811, 813, 814	Washer or dryer	15,638	~~18,282~~	26	454	~~468~~	$198	$198
811	Clothes dryer	14,420	~~16,867~~	26	423	~~436~~	$187	$187
814	Washing machine	720	~~844~~	0	12	~~13~~	$4	$4
813	Washer/dryer	498	~~571~~	0	19	~~20~~	$6	$6
331-334	Torch or burner	1,983	~~2,283~~	7	131	~~136~~	$100	$100
334	Soldering equipment	823	~~955~~	7	52	~~55~~	$35	$35
331	Welding torch	573	~~649~~	0	46	~~46~~	$45	$45
332	Cutting torch	309	~~351~~	0	12	~~14~~	$7	$7
333	Burner	277	~~328~~	0	20	~~22~~	$12	$12
730-757	Entertainment equipment	1,804	~~2,102~~	12	105	~~108~~	$49	$49
753	Television	789	~~911~~	4	62	~~64~~	$23	$23
748	Stereo equipment	266	~~314~~	8	9	~~10~~	$12	$11
743	Radio	216	~~267~~	0	7	~~8~~	$3	$3
754	VCR or VCR/TV combination	134	~~151~~	0	10	~~10~~	$2	$2
741	(Audio) CD player	103	~~120~~	0	0	~~0~~	$2	$2
747	Separate audio speakers	68	~~79~~	0	2	~~2~~	$1	$1
751	Cable converter box	49	~~58~~	0	5	~~5~~	$1	$1
750	Unclassified video equipment	39	~~45~~	0	3	~~4~~	$1	$1
740	Unclassified sound recording or receiving equipment	39	~~42~~	0	0	~~0~~	$1	$1
755	Video game (electronic)	32	~~38~~	0	5	~~5~~	$3	$3
745	Phonograph, record player or turntable	14	~~17~~	0	0	~~0~~	$0	$0
733	Musical synthesizer or keyboard	9	~~15~~	0	0	~~0~~	$0	$0
742	Laser disk player	12	~~12~~	0	0	~~0~~	$0	$0
732	Piano or organ	10	~~10~~	0	0	~~0~~	$0	$0
749	Tape recorder or player	9	~~9~~	0	0	~~0~~	$0	$0
730	Unclassified musical instrument	6	~~6~~	0	0	~~0~~	$0	$0

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
			Corrected			Corrected		Corrected
	OTHER APPLIANCES AND EQUIPMENT(Continued)							
	Entertainment equipment (continued)							
744	Two-way radio	5	~~5~~	0	0	~~0~~	$0	~~$0~~
756	Camcorder or video camera	3	~~3~~	0	0	~~0~~	$0	~~$0~~
752	Film or slide projector	0	~~0~~	0	0	~~0~~	$0	~~$0~~
731	Guitar	0	~~0~~	0	0	~~0~~	$0	~~$0~~
757	Photographic camera or equipment	0	~~0~~	0	0	~~0~~	$0	~~$0~~
850-855	Portable appliance designed to produce controlled heat	1,621	~~1,916~~	27	98	~~100~~	$62	~~$63~~
850	Unclassified portable appliance designed to produce controlled heat	557	~~639~~	14	22	~~22~~	$26	~~$26~~
855	Clothes iron	424	~~508~~	0	10	~~10~~	$10	~~$10~~
852	Electric blanket	403	~~483~~	8	54	~~55~~	$15	~~$15~~
853	Heating pad	229	~~275~~	4	12	~~13~~	$9	~~$9~~
854	Clothes steamer	8	~~11~~	0	0	~~0~~	$2	~~$2~~
851	Baby bottle warmer	0	~~0~~	0	0	~~0~~	$0	~~$0~~
812	Trash compactor	1,432	~~1,455~~	0	4	~~4~~	$0	~~$0~~
812	*Non-confined fire*	*16*	*~~21~~*	*0*	*2*	*~~2~~*	*$0*	*~~$0~~*
	Confined fire	*1,416*	*~~1,434~~*	*0*	*1*	*~~2~~*	*$0*	*~~$0~~*
873	Cigarette or pipe lighter[1]	1,019	~~1,256~~	50	183	~~190~~	$35	~~$35~~
841-849	Personal care devices	691	~~804~~	10	19	~~20~~	$22	~~$22~~
842	Curling iron	277	~~339~~	6	7	~~7~~	$6	~~$6~~
845	Hair dryer	301	~~334~~	0	12	~~13~~	$8	~~$8~~
844	Hair curler warmer	68	~~80~~	0	0	~~0~~	$7	~~$7~~
847	Razor or shaver	15	~~22~~	4	0	~~0~~	$0	~~$0~~
848	Sunlamp or tanning equipment	13	~~13~~	0	0	~~0~~	$1	~~$1~~
846	Lighted makeup mirror	12	~~12~~	0	0	~~0~~	$0	~~$0~~
841	Comb or hair brush	2	~~2~~	0	0	~~0~~	$0	~~$0~~
849	Toothbrush	2	~~2~~	0	0	~~0~~	$0	~~$0~~
843	Electrolysis equipment	0	~~0~~	0	0	~~0~~	$0	~~$0~~

*Table created May 2008, corrected October 2008

[1] Home structure fires involving lighters are estimated much higher using the Heat Source field: 9,800 fires (including 2,200 confined fires), 210 civilian deaths, 930 civilian injuries, and $221 million direct property damage (including $1 million from confined fires).

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires	Corrected	Civilian Deaths	Civilian Injuries	Corrected	Direct Property Damage (in Millions)	Corrected
	OTHER APPLIANCES AND EQUIPMENT (Continued)							
710-728	Office equipment	641	~~723~~	0	32	~~34~~	$21	$21
710-716	Computers and related equipment	446	~~488~~	0	27	~~28~~	$18	$18
711	Computer	213	~~230~~	0	15	~~15~~	$12	$12
710	Unclassified computer device	100	~~109~~	0	5	~~5~~	$4	$4
714	Computer monitor	66	~~72~~	0	2	~~2~~	$2	$2
715	Computer printer	55	~~66~~	0	5	~~5~~	$1	$1
716	Computer projection device	5	~~5~~	0	0	~~0~~	$0	$0
712	External computer storage device	3	~~3~~	0	0	~~0~~	$0	$0
713	External computer modem	3	~~3~~	0	0	~~0~~	$0	$0
722	Telephone or answering machine	107	~~124~~	0	5	~~6~~	$2	$2
720-721, 723-728	Other office equipment	88	~~111~~	0	0	~~0~~	$1	$1
726	Paper shredder	33	~~44~~	0	0	~~0~~	$0	$0
725	Fax machine	23	~~28~~	0	0	~~0~~	$0	$0
720	Unclassified office equipment	16	~~19~~	0	0	~~0~~	$0	$0
728	Typewriter	10	~~13~~	0	0	~~0~~	$0	$0
724	Copier	7	~~7~~	0	0	~~0~~	$0	$0
721	Adding machine or calculator	0	~~0~~	0	0	~~0~~	$0	$0
723	Cash register	0	~~0~~	0	0	~~0~~	$0	$0
727	Postage or shipping meter equipment	0	~~0~~	0	0	~~0~~	$0	$0
352	Incinerator	599	~~675~~	0	2	~~2~~	$0	$0
352	*Non-confined*	*0*	*~~0~~*	*0*	*0*	*~~0~~*	*$0*	*$0*
	Confined	*599*	*~~675~~*	*0*	*2*	*~~2~~*	*$0*	*$0*

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	OTHER APPLIANCES AND EQUIPMENT (Continued)							
311-318	Power tools	392	~~438~~	0	21	~~22~~	$13	$13
316	Power sander, grinder, buffer or polisher	151	~~165~~	0	2	~~2~~	$2	$2
311	Power saw	82	~~91~~	0	5	~~5~~	$3	$3
315	Power drill or screwdriver	66	~~77~~	0	4	~~4~~	$1	$1
310	Unclassified power tool	66	~~77~~	0	8	~~8~~	$5	$5
314	Power cutting tool	22	~~22~~	0	2	~~2~~	$0	$0
313	Power shaper, router, joiner, or planer	5	~~5~~	0	0	~~0~~	$2	$2
312	Power lathe	0	~~0~~	0	0	~~0~~	$0	$0
317	Power hammer	0	~~0~~	0	0	~~0~~	$0	$0
318	Power nail gun	0	~~0~~	0	0	~~0~~	$0	$0
500-538	Yard or other outdoor equipment	363	~~420~~	4	20	~~21~~	$13	$13
524	Lawn mower	260	~~298~~	0	14	~~15~~	$10	$10
523	Weed burner	31	~~40~~	0	2	~~2~~	$1	$1
534	Snow blower or thrower	22	~~22~~	4	4	~~4~~	$1	$1
532	Leaf blower	21	~~21~~	0	0	~~0~~	$0	$0
525	Lawn or landscape trimmer or edger	16	~~19~~	0	0	~~0~~	$0	$0
522	Chain saw	10	~~15~~	0	0	~~0~~	$0	$0
533	Mulcher, grinder, or chipper	4	~~6~~	0	0	~~0~~	$0	$0
511	Combine or threshing machine	0	~~0~~	0	0	~~0~~	$0	$0
512	Hay processing equipment	0	~~0~~	0	0	~~0~~	$0	$0
513	Farm elevator or conveyor	0	~~0~~	0	0	~~0~~	$0	$0
514	Silo loader or unloader	0	~~0~~	0	0	~~0~~	$0	$0
515	Feed grinder, mixer, or blender	0	~~0~~	0	0	~~0~~	$0	$0
516	Milking machine	0	~~0~~	0	0	~~0~~	$0	$0
517	Pasteurizer	0	~~0~~	0	0	~~0~~	$0	$0
518	Cream separator	0	~~0~~	0	0	~~0~~	$0	$0

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	OTHER APPLIANCES AND EQUIPMENT (Continued)							
521	Farm or garden sprayer	0	~~0~~	0	0	~~0~~	$0	$0
531	Lawn vacuum	0	~~0~~	0	0	~~0~~	$0	$0
535	Log splitter	0	~~0~~	0	0	~~0~~	$0	$0
536	Post-hole auger	0	~~0~~	0	0	~~0~~	$0	$0
537	Post driver or pile driver	0	~~0~~	0	0	~~0~~	$0	$0
538	Tiller or cultivator	0	~~0~~	0	0	~~0~~	$0	$0
373, 876 861-864, 866,868	Control and detection equipment	247	~~294~~	0	0	~~0~~	$3	$3
868	Thermostat	103	~~127~~	0	0	~~0~~	$1	$1
863	Garage door opener	59	~~70~~	0	0	~~0~~	$1	$1
866	Smoke or heat detector	42	~~46~~	0	0	~~0~~	$0	$0
373	Gas regulator	23	~~25~~	0	0	~~0~~	$0	$0
876	Timer	17	~~21~~	0	0	~~0~~	$0	$0
864	Gas detector	4	~~4~~	0	0	~~0~~	$0	$0
861	Automatic door opener (not garage)	0	~~0~~	0	0	~~0~~	$0	$0
862	Burglar alarm	0	~~0~~	0	0	~~0~~	$0	$0
410-419	Biomedical equipment	231	~~262~~	54	64	~~66~~	$9	$9
416	Oxygen administration equipment	182	~~209~~	46	60	~~62~~	$7	$7
419	Therapeutic equipment	23	~~28~~	4	0	~~0~~	$1	$1
410	Unclassified medical equipment	16	~~16~~	0	2	~~2~~	$1	$1
411	Dental, medical or other powered bed or chair	10	~~10~~	4	2	~~2~~	$0	$0
412	Unclassified dental equipment	0	~~0~~	0	0	~~0~~	$0	$0
413	Dialysis equipment	0	~~0~~	0	0	~~0~~	$0	$0
414	Medical imaging equipment	0	~~0~~	0	0	~~0~~	$0	$0
415	Medical monitoring equipment	0	~~0~~	0	0	~~0~~	$0	$0
417	X-ray or other radiological equipment	0	~~0~~	0	0	~~0~~	$0	$0

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	OTHER APPLIANCES AND EQUIPMENT (Continued)							
418	Medical sterilizer	0	~~0~~	0	0	~~0~~	$0	$0
821	Hot tub, whirlpool, or spa	204	~~253~~	0	5	~~5~~	$16	$16
341-342, 344	Pump or compressor	206	~~238~~	0	0	~~0~~	$4	$4
344	Pump	136	~~154~~	0	0	~~0~~	$2	$2
341	Air compressor	70	~~84~~	0	0	~~0~~	$2	$2
342	Gas compressor	0	~~0~~	0	0	~~0~~	$0	$0
830-834	Floor care equipment	207	~~233~~	0	20	~~21~~	$5	$5
834	Vacuum cleaner	166	~~188~~	0	15	~~16~~	$4	$4
832	Carpet cleaning equipment including rug shampooer	20	~~22~~	0	2	~~2~~	$0	$0
830	Unclassified floor care equipment	15	~~15~~	0	0	~~0~~	$0	$0
833	Floor buffer or waxer	6	~~8~~	0	3	~~3~~	$0	$0
831	Electric broom	0	~~0~~	0	0	~~0~~	$0	$0
320-325	Painting or coating equipment	100	~~118~~	0	7	~~7~~	$10	$10
320	Unclassified painting tool	70	~~87~~	0	2	~~2~~	$7	$7
324	Paint sprayer	23	~~25~~	0	2	~~2~~	$3	$3
325	Coating machine	6	~~6~~	0	2	~~2~~	$0	$0
322	Paint flow coating machine	0	~~0~~	0	0	~~0~~	$0	$0
321	Paint dipper	0	~~0~~	0	0	~~0~~	$0	$0
323	Paint mixing machine	0	~~0~~	0	0	~~0~~	$0	$0
351	Heat treating equipment	101	~~117~~	0	0	~~0~~	$7	$7
374	Separate motor	71	~~94~~	0	2	~~2~~	$1	$1
872	Charcoal lighter	66	~~77~~	0	12	~~12~~	$3	$3
869	Ashtray	64	~~76~~	0	2	~~2~~	$1	$1
891	Clock	60	~~69~~	0	0	~~0~~	$2	$2
433	Elevator or lift	48	~~50~~	0	0	~~0~~	$0	$0

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

EII	Type of Equipment	Fires		Civilian Deaths	Civilian Injuries		Direct Property Damage (in Millions)	
		Corrected			Corrected		Corrected	
	OTHER APPLIANCES AND EQUIPMENT (Continued)							
345	Wet/dry vacuum or shop vac	43	~~46~~	0	7	~~7~~	$1	$1
375	Internal combustion engine	36	~~45~~	0	0	~~0~~	$1	$1
822	Swimming pool equipment	36	~~41~~	0	3	~~3~~	$3	$3
882	Powered toy	27	~~36~~	0	0	~~0~~	$1	$1
895	Sewing machine	28	~~33~~	0	0	~~0~~	$1	$1
423	TV monitor array	24	~~29~~	0	2	~~2~~	$0	$0
883	Woodburning kit	20	~~22~~	4	3	~~3~~	$1	$1
354	Tarpot or tar kettle	19	~~21~~	0	0	~~0~~	$0	$0
445	Water fountain or water cooler	14	~~19~~	0	0	~~0~~	$0	$0
875	Insect trap	13	~~15~~	0	0	~~0~~	$0	$0
346	Hoist or lift	14	~~14~~	0	0	~~0~~	$0	$0
353	Industrial furnace or kiln	11	~~13~~	0	0	~~0~~	$0	$0
443	Vending machine	8	~~11~~	0	0	~~0~~	$0	$0
348	Drilling machinery or equipment	9	~~9~~	0	0	~~0~~	$0	$0
450	Unclassified laboratory equipment	5	~~5~~	0	0	~~0~~	$0	$0
874	Fire extinguishing equipment	5	~~5~~	0	0	~~0~~	$1	$1
425	Studio type sound recording equipment	4	~~4~~	0	0	~~0~~	$0	$0
340	Unclassified hydraulic equipment	4	~~4~~	0	0	~~0~~	$0	$0
358	Extractor or waste recovery equipment	4	~~4~~	0	0	~~0~~	$0	$0
356	Distilling equipment	3	~~3~~	0	0	~~0~~	$0	$0
446	Telescope	3	~~3~~	0	0	~~0~~	$0	$0
442	Photo processing equipment	3	~~3~~	0	0	~~0~~	$0	$0
422	Telephone switching gear	3	~~3~~	0	0	~~0~~	$0	$0
362	Power transfer equipment (rope, cable, or block)	2	~~2~~	0	0	~~0~~	$0	$0
892	Gun	2	~~2~~	0	0	~~0~~	$0	$0
896	Shoe polisher	2	~~2~~	0	0	~~0~~	$0	$0
377	Car washing equipment	2	~~2~~	0	0	~~0~~	$0	$0
	Contained trash or rubbish fire	*14,634*	*~~16,546~~*	*0*	*56*	*~~57~~*	*$3*	*$3*

*Table created May 2008, corrected October 2008

Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2002-2005 Structure Fires Reported to U.S. Fire Departments (Continued)*

Additional equipment with no reported home structure fires in 2002-2005.

Equipment Involved in Ignition	
343	Atomizing equipment
347	Powered jacking equipment
355	Casting, molding or forging equipment
357	Digester or reactor
361	Conveyor
363	Power take-off
364	Powered valve
365	Bearing or brake
371	Picking, carding or weaving machine
372	Testing equipment
376	Printing press
400	Unclassified commercial or medical equipment
421	Transmitter
424	Studio type TV camera

Equipment Involved in Ignition	
426	Radar equipment
431	Amusement ride equipment
432	Ski lift
434	Escalator
441	Microfilm or microfiche viewing equipment
444	Non-video arcade game
451	Electron microscope
500	Unclassified gardening tools
865	Intercom
881	Model vehicle
893	Jewelry cleaning machine
894	Scissors
897	Sterilizer

Notes on Formats: Equipment groups shown in all caps and bold are the subject of an NFPA report. Types and groups of equipment whose names are indented are parts of the equipment group they are listed under. Equipment types that belong to a listed group are shown with that group, even if they had no reported fires estimated for the period.

Notes on Statistical Methodology: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires and civilian deaths and injuries are rounded to the nearest one, and direct property damage is rounded to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown, and partial unknown have been allocated as indicated. Fires reported as “no equipment” but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Fires reported as “no equipment” and having a confirming specific heat source are not shown on the table. Totals may not equal sums because of rounding error.

Notes on Allocations: Equipment Involved in Ignition 100, 200, 300, 400, 500, 600, 700, and 800 are partial unknowns that are proportionally allocated over the known equipment categories defined by the same initial digit (e.g., EII 100 over 101-199). Other partial unknowns that are allocated are EII 120 (over 121-129, fireplaces and chimneys), EII 210 (over 211-219, wiring, outlets, receptacles, switches, and some overcurrent protection equipment), EII 230 (over 231-239, certain light fixtures and lamps), and EII 260 (over 261-269, cords and plugs). Incident Type 113 (confined cooking vessel fires) are allocated over all known equipment codes, with the fires allocated to cooking equipment shown with those equipment types and the other fires shown together as fires confined to cooking vessel but coded as non-cooking equipment. Incident Types 114 and 116 (confined chimney and boiler fires) are similarly allocated over all known equipment codes, with the fires allocated to heating equipment shown with those equipment types and the other fires shown together as fires confined to heating equipment but coded as non-heating equipment. Incident Types 115 (confined to incinerator) and 117 (confined to trash compactor) are shown with those two types of equipment. Incident Type 118 (confined trash fire) is shown by itself.
Source: NFIRS Version 5.0 and NFPA survey.

*Table created May 2008, corrected October 2008

Appendix A.
How National Estimates Statistics Are Calculated

The statistics in this analysis are estimates derived from the U.S. Fire Administration's (USFA's) National Fire Incident Reporting System (NFIRS) and the National Fire Protection Association's (NFPA's) annual survey of U.S. fire departments. NFIRS is a voluntary system by which participating fire departments report detailed factors about the fires to which they respond. Roughly two-thirds of U.S. fire departments participate, although not all of these departments provide data every year.

NFIRS provides the most detailed incident information of any national database not limited to large fires. NFIRS is the only database capable of addressing national patterns for fires of all sizes by specific property use and specific fire cause. NFIRS also captures information on the extent of flame spread, and automatic detection and suppression equipment. For more information about NFIRS visit http://www.nfirs.fema.gov/. Copies of the paper forms may be downloaded from http://www.nfirs.fema.gov/_download/nfirspaperforms2007.pdf.

Each year, NFPA conducts an annual survey of fire departments which enables us to capture a summary of fire department experience on a larger scale. Surveys are sent to all municipal departments protecting populations of 50,000 or more and a random sample, stratified by community size, of the smaller departments. Typically, a total of roughly 3,000 surveys are returned, representing about one of every ten U.S. municipal fire departments and about one third of the U.S. population.

The survey is stratified by size of population protected to reduce the uncertainty of the final estimate. Small rural communities have fewer people protected per department and are less likely to respond to the survey. A larger number must be surveyed to obtain an adequate sample of those departments. (NFPA also makes follow-up calls to a sample of the smaller fire departments that do not respond, to confirm that those that did respond are truly representative of fire departments their size.) On the other hand, large city departments are so few in number and protect such a large proportion of the total U.S. population that it makes sense to survey all of them. Most respond, resulting in excellent precision for their part of the final estimate.

The survey includes the following information: (1) the total number of fire incidents, civilian deaths, and civilian injuries, and the total estimated property damage (in dollars), for each of the major property use classes defined in NFIRS; (2) the number of on-duty firefighter injuries, by type of duty and nature of illness; and (3) information on the type of community protected (e.g., county versus township versus city) and the size of the population protected, which is used in the statistical formula for projecting national totals from sample results. The results of the survey are published in the annual report *Fire Loss in the United States*. To download a free copy of the report, visit http://www.nfpa.org/assets/files/PDF/OS.fireloss.pdf.

Projecting NFIRS to National Estimates

As noted, NFIRS is a voluntary system. Different states and jurisdictions have different reporting requirements and practices. Participation rates in NFIRS are not necessarily uniform across regions and community sizes, both factors correlated with frequency and severity of fires. This means NFIRS may be susceptible to systematic biases. No one at present can quantify the size of these deviations from the ideal, representative sample, so no one can say with confidence that they are or are not serious problems. But there is enough reason for concern so that a second database - the NFPA survey - is needed to project NFIRS to national estimates and to project different parts of NFIRS separately. This multiple calibration approach makes use of the annual NFPA survey where its statistical design advantages are strongest.

Scaling ratios are obtained by comparing NFPA's projected totals of residential structure fires, non-residential structure fires, vehicle fires, and outside and other fires, and associated civilian deaths, civilian injuries, and direct property damage with comparable totals in NFIRS. Estimates of specific fire problems and circumstances are obtained by multiplying the NFIRS data by the scaling ratios.

Analysts at the NFPA, the USFA and the Consumer Product Safety Commission have developed the specific analytical rules used for this procedure. "The National Estimates Approach to U.S. Fire Statistics," by John R. Hall, Jr. and Beatrice Harwood, provides a more detailed explanation of national estimates. A copy of the article is available online at http://www.nfpa.org/osds or through NFPA's One-Stop Data Shop.

Version 5.0 of NFIRS, first introduced in 1999, used a different coding structure for many data elements, added some property use codes, and dropped others.

Figure 1.

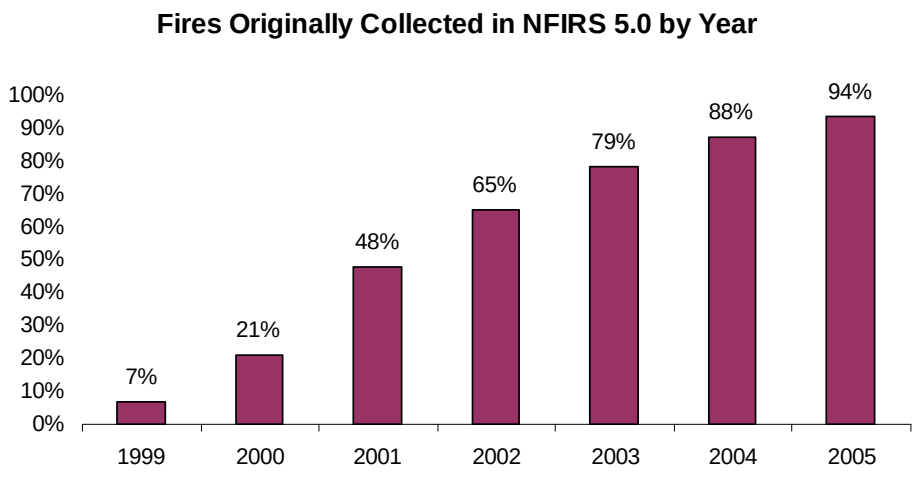

Figure 1 shows the percentage of fires originally collected in the NFIRS 5.0 system. Each year's release version of NFIRS data also includes data collected in older versions of NFIRS that were converted to NFIRS 5.0 codes.

For 2002 data on, analyses are based on scaling ratios using only data originally collected in NFIRS 5.0:

$$\frac{\text{NFPA survey projections}}{\text{NFIRS totals (Version 5.0)}}$$

For 1999 to 2001, the same rules may be applied, but estimates for these years in this form will be less reliable due to the smaller amount of data originally collected in NFIRS 5.0; they should be viewed with extreme caution.

A second option is to omit year estimates for 1999-2001 from year tables.

NFIRS 5.0 has six categories of confined structure fires, including:

- cooking fires confined to the cooking vessel,
- confined chimney or flue fires,
- confined incinerator fire,
- confined fuel burner or boiler fire or delayed ignition,
- confined commercial compactor fire, and
- trash or rubbish fires in a structure with no flame damage to the structure or its contents.

Although causal and other detailed information is typically not required for these incidents, it is provided in some cases. In order for that limited detail to be used to characterize the confined fires, they must be analyzed separately from non-confined fires. Otherwise, the patterns in a factor for the more numerous non-confined fires with factor known will dominate the allocation of the unknown factor fires for both non-confined and confined fires. If the pattern is different for confined fires, which is often the case, that fact will be lost unless analysis is done separately.

For most fields other than Property Use, NFPA allocates unknown data proportionally among known data. This approach assumes that if the missing data were known, it would be distributed in the same manner as the known data. NFPA makes additional adjustments to several fields.

For Factor Contributing to Ignition, the code "none" is treated as an unknown and allocated proportionally. For Human Factor Contributing to Ignition, NFPA enters a code for "not reported" when no factors are recorded. "Not reported" is treated as an

unknown, but the code "none" is treated as a known code and not allocated. Multiple entries are allowed in both of these fields. Percentages are calculated on the total number of fires, not entries, resulting in sums greater than 100%. Groupings for this field show all category headings and specific factors if they account for a rounded value of at least 1%.

Type of Material First Ignited (TMI). This field is required only if the Item First Ignited falls within the code range of 00-69. NFPA has created a new code "not required" for this field that is applied when Item First Ignited is in code 70-99 (organic materials, including cooking materials and vegetation, and general materials, such as electrical wire, cable insulation, transformers, tires, books, newspaper, dust, rubbish, etc..) and TMI is blank. The ratio for allocation of unknown data is:

$$\frac{\text{(All fires – TMI Not required)}}{\text{(All fires – TMI Not Required – Undetermined – Blank))}}$$

Heat Source. In NFIRS 5.0, one grouping of codes encompasses various types of open flames and smoking materials. In the past, these had been two separate groupings. A new code was added to NFIRS 5.0, which is code 60: "Heat from open flame or smoking material, other." NFPA treats this code as a partial unknown and allocates it proportionally across the codes in the 61-69 range, shown below.

61. Cigarette,
62. Pipe or cigar,
63. Heat from undetermined smoking material,
64. Match,
65. Lighter: cigarette lighter, cigar lighter,
66. Candle,
67 Warning or road flare, fusee,
68. Backfire from internal combustion engine. Excludes flames and sparks from an exhaust system, (11)
69. Flame/torch used for lighting. Includes gas light and gas-/liquid-fueled lantern.

In addition to the conventional allocation of missing and undetermined fires, NFPA multiplies fires with codes in the 61-69 range by

$$\frac{\text{All fires in range 60-69}}{\text{All fires in range 61-69}}$$

The downside of this approach is that heat sources that are truly a different type of open flame or smoking material are erroneously assigned to other categories. The grouping "smoking materials" includes codes 61-63 (cigarettes, pipes or cigars, and heat from undetermined smoking material, with a proportional share of the code 60s and true unknown data.

Equipment Involved in Ignition (EII). NFIRS 5.0 originally defined EII as the piece of equipment that provided the principal heat source to cause ignition if the equipment malfunctioned or was used improperly. In 2006, the definition was modified to "the piece of equipment that provided the principal heat source to cause ignition." However, the 2006 data is not yet available and a large portion of the fires coded as no equipment involved (NNN) have heat sources in the operating equipment category. To compensate, NFPA treats fires in which EII = NNN and heat source is not in the range of 40-99 as an additional unknown.

To allocate unknown data for EII, the known data is multiplied by

$$\frac{\text{All fires}}{(\text{All fires} - \text{blank} - \text{undetermined} - [\text{fires in which EII} = \text{NNN and heat source} <> 40\text{-}99])}$$

Additional allocations may be used in specific analyses. For example, NFPA's report about home heating fires treats Equipment Involved in Ignition Code 120, fireplace, chimney, other" as a partial unknown (like Heat Source 60) and allocates it over its related decade of 121-127, which includes codes for fireplaces (121-122) and chimneys (126-127) but also includes codes for fireplace insert or stove, heating stove, and chimney or vent connector. More general analyses of specific occupancies may not perform as many allocations of partial allocations. Notes at the end of each table describe what was allocated.

Rounding and percentages. The data shown are estimates and generally rounded. An entry of zero may be a true zero or it may mean that the value rounds to zero. Percentages are calculated from unrounded values. It is quite possible to have a percentage entry of up to 100%, even if the rounded number entry is zero. Values that appear identical may be associated with different percentages, and identical percentages may be associated with slightly different values.